

BASF Aktiengesellschaft

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We claim:

1. A process for the continuously operated fractional distillation of crude ammonia to give a low boiler fraction, a high boiler fraction and an intermediate-boiling pure fraction in a distillation apparatus configured either as a dividing wall column or as a system of thermally coupled distillation columns, wherein the low boiler fraction is taken off at the top of the distillation apparatus, the intermediate-boiling pure fraction is obtained at a side offtake and the gas loading of the distillation column is restricted so that the operating pressure is in the range from 2 to 30 bar and the F factor does not exceed $2.0 \text{ Pa}^{0.5}$.
2. A process as claimed in claim 1, wherein the operating pressure is in the range from 10 to 20 bar.
3. A process as claimed in claim 1, wherein the F factor does not exceed $1.5 \text{ Pa}^{0.5}$, preferably does not exceed $1.0 \text{ Pa}^{0.5}$.
4. A process as claimed in claim 1, wherein the intermediate-boiling pure fraction is obtained at a side offtake which is provided with droplet precipitators.
5. A process as claimed in claim 4, wherein the droplet precipitators are present in the form of demister packing.

6. A process as claimed in claim 1, wherein part of the intermediate-boiling pure fraction is taken off in liquid form and a further part of the intermediate-boiling pure fraction is taken off in gaseous form.
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7. A process as claimed in claim 1, wherein the crude ammonia contains from 95.0 to 99.9% by weight, preferably from 99.0 to 99.7% by weight, of ammonia and the intermediate-boiling pure fraction comprises at least 99.99% by weight, preferably at least 99.999% by weight, of ammonia.
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8. A process as claimed in claim 1, wherein the intermediate-boiling pure fraction is taken off under level control and the control parameter used is preferably the liquid level at the bottom of the column.
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9. A distillation apparatus configured either as a dividing wall column or as a system of thermally coupled distillation columns for carrying out the process as claimed in claim 1, wherein the low boiler fraction is taken off at the top of the distillation apparatus, the intermediate-boiling pure fraction is obtained at a side offtake and the gas loading of the distillation column is restricted so that the operating pressure is in the range from 2 to 30 bar and the F factor does not exceed $2.0 \text{ Pa}^{0.5}$.
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10. A distillation apparatus as claimed in claim 9, wherein the side offtake is provided with droplet precipitators, preferably in the form of demister packing.
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11. A distillation apparatus as claimed in claim 10, wherein the droplet precipitators are present in the form of demister packing.